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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,932	12/08/2003	Toshimitsu Konuma	0756-7221	9654
31780	7590	02/04/2008	EXAMINER	
ERIC ROBINSON			NGO, HUYEN LE	
PMB 955			ART UNIT	PAPER NUMBER
21010 SOUTHBANK ST.			2871	
POTOMAC FALLS, VA 20165			MAIL DATE	DELIVERY MODE
			02/04/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/728,932	<b>Applicant(s)</b> KONUMA, TOSHIMITSU	
	<b>Examiner</b> Julie-Huyen L. Ngo	<b>Art Unit</b> 2871	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 December 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 6-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Banda (US4231639) in view of Ohkubo et al. (US4878742) and Kanemoto et al. (US5250214A).

Banda teaches (col. 2 lines 48-64) forming a display device comprising:

Claims 6, 11-12, 17, 22-23 and 28:

- a pair of substrates(inherence)
- a liquid crystal layer provided between said pair of substrates and comprising a nematic liquid crystal
- a pair of orientation films provided adjacent to and between said pair of substrates respectively and having anti-parallel orientation directions to each other (col.2 lines 62-64);

wherein

- the liquid crystal layer always contact with the orientation films that inherently have the surface tension due to the surface pressure of the liquid crystal layer acting on the orientation films.

(Claims 7, 13, 18 and 24)

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- each of said orientation films comprises a polyimide (col. 9, lines 14-18).

(Claims 9, 15, 20 and 26)

- in order to apply voltage between liquid crystal layer, a first electrode inherently provided over one of said substrates; and a second electrode inherently provided over the other of said substrates

Claim 10, 16, 21 and 27:

- a nematic liquid crystal having positive dielectric anisotropy (cited in claim 1 of reference Banda);

Claims 29-30:

- the orientation films have been rubbed in inherently one direction, thus almost all liquid crystal molecules of liquid crystal layer are substantially aligned in one direction.

However, Banda fails to teach (a) forming spacing between said substrates is less than 3.5  $\mu\text{m}$ ; and (b) the orientation films with a surface tension of 40 dyne/cm or more; and (c) forming their device as a reflective-type display device as cited in Claims 8, 14, 19 and 25.

Ohkubo et al. teach (a) forming spacing between said substrates is less than 3.5  $\mu\text{m}$  for extinguishing diffraction without disturbance (col. 9 lines 23-27).

Kanemoto et al. teach (col. 26, lines 53-64) forming the orientation film with a surface tension of not smaller than 40 dyne/cm for spreading the LC polymer in its LC phase uniformly on a coated surface of an orientation film

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With respect to claims 8, 14, 19 and 25:

It is well known in the art for a display device to be formed as a reflective-type display device by having a reflection layer formed on surface of lower substrate for reflecting ambient light. Doing so would reduce power consumption and having a brighter display.

Therefore, it would have been obvious for one having ordinary skill in the art to form Banda display with a reflection layer on a surface of the lower substrate for reflecting ambient light. Doing so would reduce power consumption and having a brighter display.

Therefore, it would have been obvious for one having ordinary skill in the art to modify Banda display device with (a) spacing between said substrates is less than 3.5  $\mu\text{m}$  for extinguishing diffraction without disturbance (col. 9 lines 23-27) as Ohkubo et al. taught; (b) orientation films having a surface tension of 40 dyne/cm or more for spreading the LC polymer in its LC phase uniformly on a coated surface of the orientation films, as taught by Kanemoto et al.; (c) a reflection layer on a surface of the lower substrate for reflecting ambient light for reducing power consumption and having a brighter display.

### ***Response to Arguments***

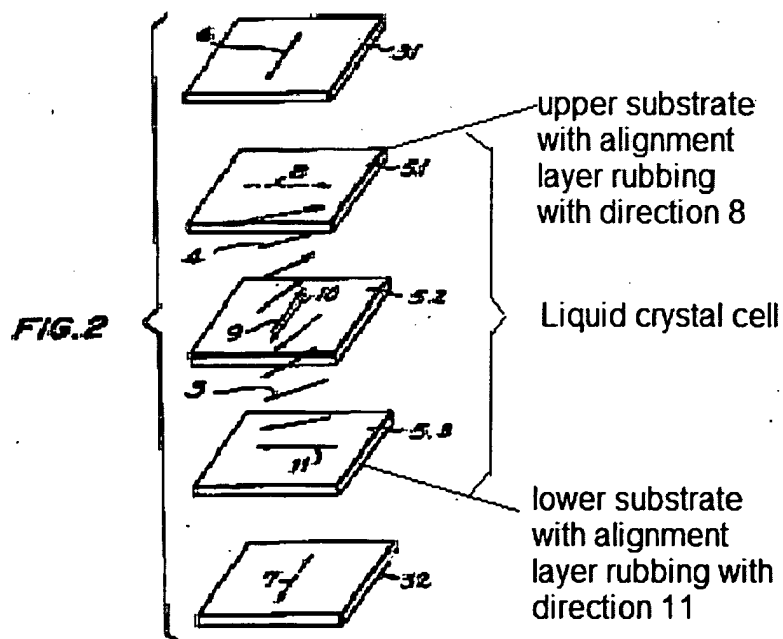
Applicant's arguments filed on December 21, 2007 have been fully considered but they are not persuasive.

Applicant's ONLY argument:

Banda does not teach or suggest a pair of orientation films on a pair of substrates having antiparallel orientation directions to each other, where the orientation films are in contact with a liquid crystal layer. Rather, for example, Banda discloses that a direction 10 on a bottom surface of the plate 5.2 is anti-parallel to a direction 9 on an upper surface of the plate 5.2 (column 4, lines 4-7; Figure 2).

Examiner's responses to Applicants' ONLY argument:

Banda does teach or suggest a display cell comprising a plurality of liquid crystal layers 3&4 with a pair of orientation films on a pair of substrates (5.1 is upper substrate and 5.3 is lower substrate while 5.2 is intermediate plate) having antiparallel orientation directions to each other, where the orientation films are in contact with a liquid crystal layer. Banda discloses that a direction 11 on a bottom surface of the plate 5.3 is anti-parallel to a direction 8 on an upper surface of the plate 5.1 (column 3, line 54 to col. 4 line 38; Figure 2; reproduced below).



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Applicants mistakenly point out one of the plural liquid crystal layers in the display cell to be a display cell. Banda uses a display cell comprising plural liquid crystal layers for confining such layers must lead to an increase in the absorption of light in the device, so that the optimum viewing directions for all of the layers in a poly-layer device coincide (col. 3, lines 35-45).

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

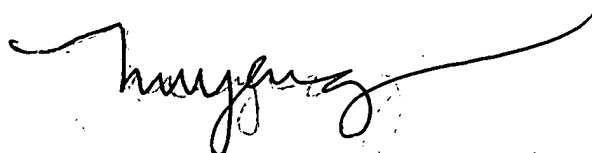
### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie-Huyen L. Ngo whose telephone number is (571) 272-2295. The examiner can normally be reached on M-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Julie-Huyen L. Ngo', with a long, sweeping horizontal line extending to the right.

Julie-Huyen L. Ngo  
Primary Examiner  
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